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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,979	10/30/2003	Gongxue Hua	LMPY-18330	7861

28584 7590 12/22/2005

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EXAMINER	
LANE, JEFFREY D	

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AC

Office Action Summary	Application No. 10/696,979	Applicant(s) HUA ET AL.	
	Examiner Jeffrey D. Lane	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *14,21 and 24-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-20,22,23 and 38-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

1. Claims 14, 21, and 24-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12 January 2005.

The Examiner concurs that the claims 1, 38, 39, 40, and 47 are generic in that they are drawn to a gas MOPA system with multiple passes through the Power Amplifier.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore: MOPA system using the same circuit, and the MOPA system using separate circuits for the MO and the PA, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figure 1 part "124" is labeled but there is no reference to it in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: On page 4 line 21 it reads “increased lever” which is interpreted for examination purposes as “increased level”. The reference sited on page 5, line 31- page 6, line 1 is found at location cited. Page 6 line 25 there reads “S since” which for examination purposes is being interpreted as “Since”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 8, 9, 13, 15, 16, 38-40, 44, 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Balla (US 6,173,000).

As for Claim 1, Balla discloses in Figure 2, An excimer or molecular fluorine laser system 100, comprising: a master oscillator 100A including therein a first discharge chamber 102 filled with a gas mixture, the first discharge chamber 102 containing a

plurality of electrodes connected to a first discharge circuit, it is inherent that the first discharge chamber is connected to a circuit, without a circuit it could not work as intended, for energizing the gas mixture and generating an oscillator beam 101 in the master oscillator 100A, the master oscillator further including at least one window (inherent) at an end of the first discharge chamber for sealing the first discharge chamber and for transmitting the oscillator beam 101; a power amplifier 100B including therein a second discharge chamber 130 filled with a gas mixture, the second discharge chamber containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture and amplifying the oscillator beam 101 during a first pass through the power amplifier 100B, the power amplifier 100B further including at least one window at each (inherent) end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam; and a set of optics 154 and 156 capable of redirecting at least a portion of the oscillator beam 101, transmitted by the power amplifier 100B, back through the power amplifier 100B, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier.

As for claim 8, Balla discloses in Figure 2, the master oscillator further includes a line-narrowing optics module 108, 110, 112, and 114, for narrowing the oscillator beam in the first discharge chamber.

As for claim 9, Balla discloses in Figure 2, the master oscillator further includes an outcoupler module 118.

As for claim 13, Balla discloses in Figure 2, the set of optics 154 and 156 redirects at least a portion of the oscillator beam 101 back through the power amplifier 100B in a direction parallel to the direction of the first pass.

As for claim 15, Balla discloses in Figure 2, the set of optics 154 and 156 redirects at least a portion of the oscillator beam 101 back through the power amplifier 100B in a direction opposite to the direction of the first pass.

As for claim 16, Balla discloses in Figure 2, the set of optics 154 and 156 redirects at least a portion of the oscillator beam back through the power amplifier 100B such that the redirected portion does not overlap the path of the beam on the first pass.

As for claim 38, Balla discloses in Figure 2, An excimer or molecular fluorine laser system 100, comprising: a master oscillator 100A including therein a first discharge chamber filled with a first gas mixture, the first discharge chamber containing a plurality of electrodes connected to a first discharge circuit for energizing the gas mixture and outputting an oscillator beam; and a multi-pass amplifier 100B capable of receiving the oscillator beam, the multi-pass amplifier 100B including therein a second discharge chamber 130 filled with a second gas mixture, the second discharge chamber containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture and amplifying the oscillator 100B beam during a each pass of the oscillator beam through the power amplifier, the power amplifier 100B further including a set of reflective optics 154 and 156 capable of redirecting at least a portion of the oscillator beam through the power amplifier for at least one subsequent pass.

As for claim 39, Balla discloses in Figure 2, An excimer or molecular fluorine laser system, comprising: a master oscillator 100A for energizing a gas mixture and outputting an oscillator beam 101; and a multi-pass amplifier 100B capable of receiving and directing the oscillator 101B beam such that at least a portion of the oscillator beam is amplified over each of a plurality of passes through the amplifier.

As for claim 40, Balla discloses in figure 2, a method of generating an output beam in an excimer or molecular fluorine laser system 100, comprising: generating an oscillator beam 101 in a master oscillator 100A; passing the oscillator beam on a first pass through a power amplifier 100B, such that the oscillator beam is amplified; directing at least a portion of the oscillator beam back to the power amplifier 100B; and passing the portion of the oscillator beam on a second pass through the power amplifier 100B such that the portion of the oscillator beam is further amplified 101.

As for claim 44, Balla discloses in figure 2, a method further comprising: using a line-narrowing optics module 108, 110, 112, and 114 to narrow the oscillator beam in the master oscillator.

As for claim 47, Balla discloses in figure 2, A method of generating an output beam in an excimer or molecular fluorine laser system 100, comprising: generating an oscillator beam 101 in a master oscillator 100A including therein a first discharge chamber 102 filled with a gas mixture, the first discharge chamber containing a plurality of electrodes connected to a first discharge circuit for energizing the gas mixture to generate the oscillator beam, the master oscillator further including at least one window at an end of the first discharge chamber for sealing the first discharge chamber and

transmitting the oscillator beam 101; receiving the oscillator beam to a power amplifier 100B including therein a second discharge chamber 130 filled with a gas mixture, the second discharge chamber containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture and amplifying the oscillator beam during a first pass through the power amplifier, the power amplifier further including at least one window at each end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam 101; and positioning a set of reflective optics 154 and 156 in the path of the oscillator beam transmitted from the power amplifier such that at least a portion of the oscillator beam transmitted by the power amplifier is directed back through the power amplifier, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier 100B.

6. Claims 1, 2 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Omura (US 2002/0186355).

As for claims 1 and 2, Omura discloses in figure 9, An excimer or molecular fluorine laser system, comprising: a master oscillator 110 including therein a first discharge chamber filled with a gas mixture (See Paragraph [0086]), the first discharge chamber containing a plurality of electrodes connected to a first discharge circuit for energizing the gas mixture (see paragraph [0086]) and generating an oscillator beam in the master oscillator, the master oscillator further including at least one window at an end of the first discharge chamber 110 for sealing the first discharge chamber 110 and for transmitting the oscillator beam; a power amplifier including therein a second

discharge chamber 120 filled with a gas mixture (see paragraph [0086]), the second discharge chamber 120 containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture and amplifying the oscillator beam during a first pass through the power amplifier, the power amplifier further including at least one window at each end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam; and a set of optics 122 and 124 capable of redirecting at least a portion of the oscillator beam, transmitted by the power amplifier 120, back through the power amplifier 120, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier. Omura further discloses, the first 100 and second 102 discharge circuits comprising the same circuit 103.

As for claim 17, Omura discloses in figure 9, the set of reflective optics 122 expands the portion of the beam redirected through the power amplifier 102 such that the redirected portion removes stored energy from the remaining volume of a gain medium 120 in the second discharge chamber 102 not removed during the first pass.

7. Claims 1, 3, 4, 18-20, 22, 23, 40, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Knowles et al. (US 2002/0154668).

As for claims 1 and 3, Knowles discloses in figure 3A An excimer or molecular fluorine laser system, comprising: a master oscillator 10A including therein a first discharge chamber filled with a gas mixture (see abstract), the first discharge chamber containing a plurality of electrodes (fig. 2, 10A2) connected to a first discharge circuit for energizing the gas mixture (see abstract) and generating an oscillator beam in the

master oscillator, the master oscillator further including at least one window (see paragraph [0073]) at an end of the first discharge chamber for sealing the first discharge chamber 10A and for transmitting the oscillator beam; a power amplifier 12A including therein a second discharge chamber filled with a gas mixture (see abstract), the second discharge chamber containing a plurality of electrodes (fig. 2, 10A2) connected to a second discharge circuit for energizing the gas mixture and amplifying the oscillator beam during a first pass through the power amplifier 12A, the power amplifier 12A further including at least one window at each end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam; and a set of optics 12C and 12D capable of redirecting at least a portion of the oscillator beam, transmitted by the power amplifier 12A, back through the power amplifier 12A, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier 12A. Knowles further discloses in paragraph [0200], "... the output of detector 69 is fed to a computer controller which uses a special algorithm to adjust the laser charging voltage to precisely control the pulse energy of future pulses based on stored pulse energy data in order to limit the variation of the energy of individual pulses and the integrated energy of bursts of pulses". Knowles further discloses in paragraph [0194] that to control the pulse energy to adjust the "conditions in the poser amplifier".

As for claim 4, Knowles discloses a gas MOPA system with gas lasers with the beam passing through the power amplifier twice for further amplification. Knowles further discloses in Fig 1, the first discharge circuit 8A and 12B is separate from the

second discharge circuit 8B and 10B, such that the power amplifier and the master oscillator can be separately optimized.

As for claim 18, Knowles discloses using an F_2 laser with a secondary gas of N_2 (see Paragraph [0284])

As for claim 19, Knowles discloses, "The system described herein represents a major improvement in long term excimer laser performance especially for ArF and F.sub.2 lasers." (See Paragraph [0284])

As for claim 20, Knowles discloses, "In preferred embodiments the LNP is purged with helium and the remainder of the beam path is surged with nitrogen." (See Paragraph [0282])

As for claim 22, Knowles discloses all that pertains to claim 1. Knowles further discloses, "The preferred embodiment of this invention has a gas control module as indicated in FIG. 1 " (See paragraph [0189]).

As for claim 23, Knowles teaches all that pertains to claim 22 (see above), a gas control module is being interpreted as a processing device in communication with the gas supply system.

As for claims 40 and 46, Knowels discloses in figure 3A, a method of generating an output beam in an excimer or molecular fluorine laser system (see abstract), comprising: generating an oscillator beam in a master oscillator 10A; passing the oscillator beam on a first pass through a power amplifier 12A, such that the oscillator beam is amplified; directing at least a portion of the oscillator beam back to the power amplifier 12A; and passing the portion of the oscillator beam on a second pass through

the power amplifier such that the portion of the oscillator beam is further amplified. Knowles further discloses, "The preferred embodiment of this invention has a gas control module as indicated in FIG. 1 " (See paragraph [0189]).

8. Claims 40, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Onkels et al. (US 2002/0114370). Onkels discloses in figure 14, A method of generating an output beam in an excimer or molecular fluorine laser system (see abstract), comprising: generating an oscillator beam in a master oscillator 126; passing the oscillator beam on a first pass through a power amplifier 136, such that the oscillator beam is amplified; directing at least a portion of the oscillator beam back to the power amplifier 136; and passing the portion of the oscillator beam on a second pass through the power amplifier 136 such that the portion of the oscillator beam is further amplified; further comprising, transmitting an undirected portion of the oscillator beam as an output beam at mirror 140.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Onkles et al. (US 2002/0114370). Onkels discloses, An excimer or molecular fluorine laser system (see abstract),

comprising: a master oscillator including therein a first discharge chamber 101 filled with a gas mixture (see abstract), the first discharge chamber containing a plurality of electrodes 6 connected to a first discharge circuit for energizing the gas mixture and generating an oscillator beam in the master oscillator 126, the master oscillator further including at least one window at an end of the first discharge chamber for sealing the first discharge chamber and for transmitting the oscillator beam (see paragraph [0071]); a power amplifier 136 including therein a second discharge chamber 103 filled with a gas mixture (see abstract), the second discharge chamber containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture (see abstract) and amplifying the oscillator beam during a first pass through the power amplifier, the power amplifier further including at least one window at each end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam; and a set of optics 132, 138, 140, and 142 capable of redirecting at least a portion of the oscillator beam, transmitted by the power amplifier 136, back through the power amplifier 126, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier 136. Wherein: the set of optics 132, 138, 140, and 142 are further capable of redirecting at least a portion of the oscillator beam back through the power amplifier in order to stretch an effective length of the amplified pulse. In the configuration as shown part of the pulse would exit the system during the first pass and part of it would make a second pass. The tail end of the pulse portion that traveled through the amplifier twice would be

later than the tail end of the portion that traveled through first. This would in effect create a pulse that is lengthened.

11. Claims 1, 12, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruesselbach (US 4,734,911) in view of Omura (2002/0186355).

As for claim 1, Bruesselbach discloses in fig 1, A gas laser system, comprising: a master oscillator 12 including therein a first discharge chamber filled with a gas mixture (see column 5 lines 1-3), the first discharge chamber containing a plurality of electrodes connected to a first discharge circuit for energizing the gas mixture (see column 5 lines 1-3) and generating an oscillator beam in the master oscillator 12, the master oscillator 12 further including at least one window at an end of the first discharge chamber for sealing the first discharge chamber and for transmitting the oscillator beam; a power amplifier 14 including therein a second discharge chamber 14 filled with a gas mixture (see column 5 lines 1-3), the second discharge chamber containing a plurality of electrodes connected to a second discharge circuit for energizing the gas mixture (see column 5 lines 1-3)and amplifying the oscillator beam during a first pass through the power amplifier 14, the power amplifier 14 further including at least one window at each end of the second discharge chamber for sealing the second discharge chamber and for receiving and transmitting the oscillator beam; and a set of optics capable of redirecting at least a portion of the oscillator beam, transmitted by the power amplifier 14, back through the power amplifier 14, such that the redirected portion of the oscillator beam is further amplified on a subsequent pass through the power amplifier 14. However Bruesselbach does not disclose an excimer laser. Omura discloses, "It is clear from the

above equation that resolution can be increased by decreasing the wavelength of the actinic light or radiation responsible for exposure ... Based on this fact, the mercury lamp i-line light sources (wavelength 365 nm) which had previously been favored by the industry have been largely replaced by the KrF excimer laser (wavelength 248 nm)" (See Paragraph [0005]). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a KrF excimer laser in Bruesselbach's laser system to increase resolution.

As for claim 12, Bruesselbach further discloses, "The optical delay is implemented in the preferred embodiment of FIG. 1 as an optical path whose length D is chosen to be equal to or greater than the distance, 1/2.tau.c, where c is the speed of light, that light travels during the pulse duration .tau. of the oscillator 12. " (See column 8 lines 31-39).

As for claim 40, Bruesselbach discloses in fig 1, a method of generating an output beam in an gas laser system, comprising: generating an oscillator beam in a master oscillator; passing the oscillator beam on a first pass through a power amplifier, such that the oscillator beam is amplified; directing at least a portion of the oscillator beam back to the power amplifier; and passing the portion of the oscillator beam on a second pass through the power amplifier such that the portion of the oscillator beam is further amplified. However Bruesselbach does not disclose an excimer laser. Omura discloses, "It is clear from the above equation that resolution can be increased by decreasing the wavelength of the actinic light or radiation responsible for exposure ... Based on this fact, the mercury lamp i-line light sources (wavelength 365 nm) which had previously been favored by the industry have been largely replaced by the KrF excimer laser (wavelength 248 nm)" (See Paragraph [0005]). Therefore it would have been obvious to one of ordinary skill in the

art at the time of the invention to use a KrF excimer laser in Bruesselbach's laser system to increase resolution.

12. Claims 6, 7, 10, 11, 42, 43, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruesselbach (US 4,734,911) in view of Omura (2002/0186355) as applied to claims 1 and 40 above, and further in view of Hunt ("Suppression of self-focusing through low-pass spatial filtering and relay imaging". Applied Optics. Vol. 17, No 13. pg. 2053-2057, July 1, 1978).

As for claim 6, Bruesselbach and Omura disclose all that pertains to claim 1. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 24. Hunt teaches, "The optical imaging property of an individual <spatial> filter may be used to provide an effective zero propagation path through an amplifier stage, and, as a consequence, the growth of intensity fluctuations induced by self-focusing is minimized. " (V. Conclusions, pg 2057). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a spatial filter as an optical decoupler to provide an effective zero propagation path. Based on page 5 lines 21-22 of the present application, the Examiner understands that a spatial filter is an optical decoupler.

As for claim 7, Bruesselbach and Omura disclose all that pertains to claim 1. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 22. Hunt teaches, "The optical imaging property of an individual <spatial> filter may be used to provide an effective zero propagation path through an amplifier stage, and, as a consequence, the growth of intensity fluctuations induced by self-focusing is minimized. " (V. Conclusions, pg 2057). Therefore it would have been obvious to one of ordinary skill in the art at the

time of the invention to use a spatial filter as an optical decoupler to provide an effective zero propagation path.

As for claim 10, Bruesselbach and Omura disclose all that pertains to claim 1. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 24. Hunt teaches, "Spatial filtering has been shown to control instabilities" (see article abstract, pg 2053). Therefore it would have been obvious to one of ordinary skill in the art to use a spatial filter in location 24 of Bruesselbach's MOPA system (see figure 1), to control instabilities.

As for claim 11, Bruesselbach and Omura disclose all that pertains to claim 1. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 22. Hunt teaches, "Spatial filtering has been shown to control instabilities" (see article abstract, pg 2053). Therefore it would have been obvious to one of ordinary skill in the art to use a spatial filter in location 22 of Bruesselbach's MOPA system (see figure 1), to control instabilities.

As for claim 42, Bruesselbach and Omura disclose all that pertains to claim 40. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 24. Hunt teaches, "The optical imaging property of an individual <spatial> filter may be used to provide an effective zero propagation path through an amplifier stage, and, as a consequence, the growth of intensity fluctuations induced by self-focusing is minimized. " (V. Conclusions, pg 2057). For examination purposes a spatial filter as described by Hunt is being interpreted as an optical decoupler. Therefore it would have been obvious to one of

ordinary skill in the art at the time of the invention to use a spatial filter as an optical decoupler to provide an effective zero propagation path.

As for claim 43, Bruesselbach and Omura disclose all that pertains to claim 40. However, neither Bruesselbach nor Omura disclose using a spatial filter in position 22. Hunt teaches, "The optical imaging property of an individual <spatial> filter may be used to provide an effective zero propagation path through an amplifier stage, and, as a consequence, the growth of intensity fluctuations induced by self-focusing is minimized. " (V. Conclusions, pg 2057). For examination purposes a spatial filter as described by Hunt is being interpreted as an optical decoupler. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a spatial filter as an optical decoupler to provide an effective zero propagation path.

As for claim 45 Bruesselbach and Omura discloses all that pertains to claim 40. However, neither Bruesselbach nor Omura disclose using a spatial filter as one of the sets of optics. Hunt teaches, "Spatial filtering has been shown to control instabilities" (see article abstract, pg 2053). Hunt further discloses modifying the width of the beam (See fig. 1, pg 2054). Therefore it would have been obvious to one of ordinary skill in the art to use a spatial filter in location 22 or 24 of Bruesselbach's MOPA system (see figure 1), to control instabilities.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey D. Lane whose telephone number is (571) 272-1676. The examiner can normally be reached on Monday thru Friday 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey Lane

Jeffrey D Lane
Examiner
Art Unit 2828

JDL

James Meneffee